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GNE.3030R1C5

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Goddard et al. (as amended)
Appl. No.	:	10/036,342
Filed	:	December 26, 2001
For	:	POLYPEPTIDES THAT INDUCE CELL PROLIFERATION (as amended)
Examiner	:	Kolker, Daniel E.
Group Art Unit	:	1649

DECLARATION UNDER 37 CFR §1.131

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

We declare and state as follows:

1. We are the inventors of the invention claimed in the above-captioned patent application.
2. During the time period in which we participated in the events and activities described herein, we were employed by Genentech, Inc., the assignee of the above-captioned application.
3. All of the events and activities described herein were performed by us personally, or by others at our direction as part of our duties as employees of Genentech, Inc.
4. The invention claimed in the above-captioned patent application was conceived and reduced to practice in the United States prior to November 10, 1999 as described below.
5. Prior to November 10, 1999, we conceived of the invention claimed in the above-captioned patent application. This is demonstrated by the attached sequence printout (Exhibit A), which was generated prior to November 10, 1999, and which shows the complete sequence of the nucleic acid having the sequence of SEQ ID NO: 56. The attached printout also shows the complete sequence of the polypeptide which has the sequence of SEQ ID NO: 57. As evidenced by the sequence printout, we were in possession of the complete nucleic acid and amino acid sequences prior to November 10, 1999.
6. The date deleted from Exhibit A is prior to November 10, 1999. This date was redacted pursuant to M.P.E.P. § 715.07. The date that remains is the date the report was printed, April 28, 2005.
7. After these initial experiments, we diligently reduced the claimed subject matter to practice by working to express and purify the encoded polypeptide and to run it systematically

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through many assays. The cDNA was deposited with the American Type Culture Collection (ATCC) on April 20, 1999 and assigned ATCC no. 203948. The protein of interest was assigned a "protein inventory number" (e.g., PIN1205-1), and this protein is a polypeptide having the sequence of SEQ ID NO:57, and is encoded by SEQ ID NO: 56.

8. Exhibit B shows that the protein lot designated PIN1205-1 was delivered to James Pan on a date prior to November 10, 1999 in order to perform assay ASY92, called "Mouse Mesangial Cell proliferation Assay." Also, as shown in Exhibit B, the assay was completed on a date prior to November 10, 1999. Exhibit B also shows that the tested polypeptides tested positive ("All Positives"), thereby confirming the ability of the encoded polypeptide to induce mesangial cell proliferation. Thus, actual reduction to practice occurred on a date prior to November 10, 1999.

9. The dates deleted from Exhibit B all are prior to November 10, 1999. These dates were redacted pursuant to M.P.E.P. § 715.07. The date that remains is the date the report was printed, April 28, 2005.

10. After reducing the invention to practice, we worked with the Genentech, Inc. patent department to prepare a non-provisional patent application, which included the sequences of SEQ ID NO:56 and SEQ ID NO:57, as well as the data showing the ability to induce mesangial cell proliferation. That application was filed on March 1, 2000 as PCT/US00/05601.

11. We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information or belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful statements may jeopardize the validity of the application or any patent issued thereon.

By: A. Goddard
Audrey Goddard

Date: 19 Oct 05

By: _____
Paul J. Godowski

Date: _____

By: _____
Austin L. Gurney

Date: _____

By: _____
James Pan

Date: _____

By: _____
Colin K. Watanabe

Date: _____

By: _____
William I. Wood

Date: _____

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By: _____

Andrey Goddard

Date: _____

By: _____

Paul J. Godowski

Date: 10/18/05

By: _____

Austin L. Gurney

Date: _____

By: _____

James Pan

Date: _____

By: _____

Colin K. Watanabe

Date: _____

By: _____

William I. Wood

Date: _____

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Audrey Goddard

By: _____ Date: _____
Paul J. Godowski

By: _____ Date: _____
Austin L. Gurney

By: _____ Date: 10/18/05
James Pan

By: _____ Date: _____
Colin K. Watanabe

By: _____ Date: _____
William I. Wood

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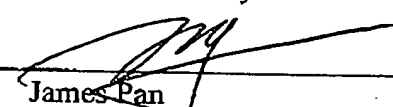
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By: _____ Date: _____
Audrey Goddard

By: _____ Date: _____
Paul J. Godowski

By: _____ Date: _____
Austin L. Gurney

By: _____ Date: Oct 24/05
James Pan

By: _____ Date: _____
Colin K. Watanabe

By: _____ Date: _____
William I. Wood

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By: _____
Audrey Goddard

Date: _____

By: _____
Paul J. Godowski

Date: _____

By: _____
Austin L. Gurney

Date: _____

By: _____
James Pan

Date: _____

By: Colin K Watanabe
Colin K. Watanabe

Date: Oct 20, 2005

By: _____
William I. Wood

Date: _____

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By: _____
Audrey Goddard

Date: _____

By: _____
Paul J. Godowski

Date: _____

By: _____
Austin L. Gurney

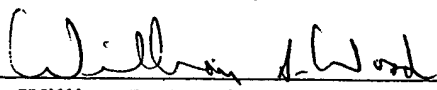
Date: _____

By: _____
James Pan

Date: _____

By: _____
Colin K. Watanabe

Date: _____

By: 
William I. Wood

Date: 10/19/05

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>Thursday, April 28, 2005
>DNA92234 [Full]
>887 Sites [All Sites]
> {DNA92234}, sheldens
> Lib309
>Sequence confirmed by phredphrap

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      sphi  fndIII/mvuI      mnlI
      nspHI  bstUI  taiI      taqI
      taiI  nspi  bsh1236I      xhoI
      maeII/hpyCH4IV  belWI/spI  tsp509I[M.ecoRI-]
      aluI  hinII/acyI  cac8I  bsaAI  ecoRI  tliI
      tsp45I  sapI  ahaII/bsaHI  mlul  rsaI  hpy188I  smlI
      maeIII  mboII  aatII  cac8I  afiIII  maeII/hpyCH4IV  paer7I  hpy188I  aciI  bpmI/g
      hphI  sfci  earI/ksp632I  hpy99I  hpyCH4V  csp6I  aluI  apoI  avai[M.taqI-]  mnlI  fnu4HI/bsaFI  hpy18
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 hpaII
 dsav
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sau3AI
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 dpnII[dam-]
 dpnI[dam+]
 alwI[dam-]
 nlaIV
 pleI
 mlyI
 hinfi
 bsmFI mnlI
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 ACCCTGAGGG AGACGGTGTG AAAAACCTCC AACCTTTCA AGATCTCCG AGTCTTGAG GTGGGATAC CTAGGGTTG AGCCCTCTTA CCGACGCGAGG
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mnlI
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nlaIV
avaII
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dsav[dcn-] mboI/ndeII[dcn-] mvaI
bstNI            dpnII[dcn-] ecorII[dcn-]
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bmyI bsaKI[dcn-] mboII          bstNI
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mwoI banII bpmI/gsuI[dcn-]      bstNI
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mspI
hpaII
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bsaKI
bsaJI
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bsaKI
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nlaIV
saI3AI
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dpmI{dam+}
alwI{dam-}
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tsp509I
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mnlI
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mnlI
acc65I
mnlI
hpyCH4V
mnlI
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bani
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bpml/gsul[dcM
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acc65I
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hpyCH4V
mnlI
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bstFSI bfaI bfaI bsaWI bbvI taqI ddeI bseRI hinfI hpyCH4V mnlI
1201 GGCATCCATC TAGACCTAGA AGAATACCGG AATAGCAGCC GGGTTGAGAA ATTCTGTTC GAACTAAGG AGGAGATTCT AATGCACCTC TGGAGGTACC
CGGTAGGTAG ATCTGGATCT TCTTATGCC TTATCCGCG CCCAACTCTT TAAAGACAAG CTATGATTCC TCTCTAAGA TTACGTGAG ACCTCCATGG
312 A I H L D L E E Y R N S S R V E K F L F D T K E E I L M H L W R Y P

haeIII/palI
eaeI[dcM-]
cfrI
scrFI[dcM-]
pspGI
mvaI
ecoRII[dcM-]
dsaV[dcM-]
bstNI
bssKI[dcM-]
apoI
tsp509I
bsm
imaI
maeI
bfaI
nlaIII taqI[dam-]
apyI[dcM+] bst4CI/hpyCH4III
asp700
1301 CATCTCTTC TATCATGG ATCGAGGCG CGTTGATGA GCTTGAAT AAAACAGTCA TACTGGCG AGTTATAGGA AAATTTCAA TCCGTCTAGT
GTAGAGAAAG ATTAGTACCC TAGCTCCCGC GCAAACTACT CGGACCTTGA TTTGTGAGT ATGGACCGGC TCAATATCCT TTAAAGATT AGCAGATCA
346 S L S I H G I E G A F D E P G T K T V I P G R V I G K F S I R L V

```

nlaiii	tsp45I	pl
msli	maeIII	ml
	hphI	hi
msli	acII	xlui
	mbolI	asp700
	hpy188III	bstXI
		nlaiI

1401 CCCTCACATG AATGTCTCTG CCGTGGAAAA ACAGGTGACA CGACATCTTG AGCATGTGTT CTCCAAAAGA AATAGTTCCA ACAAGATGGT TGTTCATG
 GGGAGTGTAC TTACACAGAC GCCACCTTTT TGTCCACTGT GCTGTAGAC TTCTACACAA GAGGTTTCT TTATCAGGT TGTCTACCA ACAAGGTAC
 379 P H M N V S A V E K Q V T R H L E D V F S K R N S S N K M V V S M

rmal	dsal	hpy188I	sau
mael	btgl/bstDSI	sau3AI	mbo
bfaI	bsaJI	mbol/ndeII[dam-]	dpn
	hpyCH4V	dpnII[dam-]	dpn
	bsrI	dpnI[dam+]	alw

1501 ACTCTAGGAC TACACCCGTG GATTGCAAT ATTGATGACA CCCAGTATCT CCGAGCAAAA AGAGCGATCA GAACAGTGT TGGACAGAA CCAGATATGA
 TGGATCCCTG ATGTGGGCAC CTAACGTTA TAACTACTGT GGTCTATGA GGTCTGTTT TCTCGTAGT CTGTGACAA ACCTTGCTT GGTCTATCT
 412 T L G L H P W I A N I D D T Q Y L A A K R A I R T V F G T E P D M I

tspRI

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sau3AI
mboI/ndeII[dam-]
dpmII[dam-]
fokI dpmI[dam+]
bstFSI
scrFI[M.hpaII-]
ncII alwI[dam-]
mspI nlaIV
hpaII bstXI/xhoII
dsaV bamHI
bsaKI alwI[dam-] muni/mfeI
tsp509I
1601 TCCGGGATGG ATCCACCAATT CCAATTGCCA AAATGTGCCA GGAGATCGTC CACAAGAGCG TGGTGTCTAAT TCCGCTGGGA GCTGTGTGATG ATGGAGAACA
AGGCCCTACC TAGGTGGTAA GGTAAACGGT TTACAAAGGT CCTCTAGCAG GTGTCTCGC ACCACGATTA AGCGGACCGT CGACAACTAC TACCTCTTGT
446 R D G S T I P I A K M F Q E I V H K S V V L I P L G A V D D G E H

sau3AI
serFI[dcn-]
pspGI mboI/ndeII[dam-]
mvaI dpmII[dam-]
ecorII[dcn-]
dsaV[dcn-]
bstNI dpmI[dam+]
bssKI[dcn-]
tsp509I
mspAII/nspBII
mwoI acil aluI
tru9I
tseI
nlaIV
mmlI tsp509I bbvI ddeI
sau96I[M.haeIII-]
'haeIII/palI aseI/asnI/vspI
1701 TTCGCAGAT GAGAAATCA ACAGGTGGAA CTACATAGAG GGAACCAAT TATTGTCTGC CTTTTCTTA GAGATGGCCC AGCTCCATTA ATCACAAGAA
AAGCGTCTTA CTCCTTTAGT TGTCACCTT GATGATCTC CCTTGGTTA ATAAACGACG GAAAAGAA CTCTACCGGG TCGAGGTAAT TAGTGTCTT
479 S Q N E K I N R W N Y I E G T K L F A A F F L E M A Q L H O

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sau3AI
mboI/ndeII[dam-]
dpnII[dam-]
dpnI[dam+]
hpy188I
sau3AI tspRI
hpy188I alwI[dam-]
xmaI mboI/ndeII[dam-] hphI
maeI dpnII[dam-] tfII mnlI foki bfaI foki bfaI
bfaI dpnI[dam+] hinfI[M.hphI-] bstF5I bstF5I hpy188III bfaI csp6I
1801 CCTCTAGTC TGAATGATC CACTGCACAGA TTCACCTCCC CCACATCCCT AGACAGGGAT GGAATGTAAA TATCCAGAGA ATTGGGTCT AGTATAGTAC
GGAAGATCAG ACTAGACTAG GTGACTGTCT AAGTGGAGGG GGTGTAGGGA TGTGTCCCTA CCTTACATTT ATAGGTCTCT TAACCCAGA TCATATCATG

sau96I
nlaIV
avaII hpyCH4V
ppuMI bsgI
ecoO109I/draII
tru9I tspRI
mseI bsmFI btsI
ahaII/draI ecoRV alwI[dam-] sspI
1901 ATTTTCCCTT CCATTAAAA TGTCTTGGGA TATCTGGATC AGTAATAAAA TATTCAAAG GCACAGATGT TGAATAGGT TTAGGTCCC CCCTGCACA
TAAAGGGAA GGTAAATTTT ACAGAACCTT ATAGACCTAG TCATTATTTT ATAAAGTTTC CGTGTCTACA ACCTTTACCA AATTCACGGG GGTGACGTGT

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scrFI[dcn-]
pspGI
mvaI
ecorII[dcn-]
dsav[dcn-]
bstNI
bssKI[dcn-]
apyI[dcn+]
bslI      tfiI
hpyCH4V   bsaJI   hinfI
2001 CCTTCTCCAA GTCATAGCTG CTGACGCAA CTGATTCCTG CCAGTCCTG TCGATAGCC CCAGGATGG ATTCCTTCCA ACCTTTTAGC ATATCTCCAA
GGAAGGAGTT CAGTATCGAC GAACGTGCTT GAACATAAAG GGTTCAGGAC ACCTTATCGG GGTCTTACC TAAGGAGGT TGAATAATCG TATAGAGGTT

tseI
cac8I
tseI   fnu4HI/bsoFI
fnu4HI/bsoFI
bbvI   bbvI   hpyCH4V
alul   hpyCH4V
mnlI
2001 CCTTCTCCAA GTCATAGCTG CTGACGCAA CTGATTCCTG CCAGTCCTG TCGATAGCC CCAGGATGG ATTCCTTCCA ACCTTTTAGC ATATCTCCAA
GGAAGGAGTT CAGTATCGAC GAACGTGCTT GAACATAAAG GGTTCAGGAC ACCTTATCGG GGTCTTACC TAAGGAGGT TGAATAATCG TATAGAGGTT

sau96I      tsp45I
avaII        bssSI
ppuMI        hgiAI/aspHI
ecoO109I/draII hpy188III
rmaI         bsp1286
mspI         hpaII
tsp509I      hpaII
hpyCH4V      bsaWI
2101 CCTTGGCAAT TGAATGGCAT AATCAGTCCG GTTGTGTTTC TAGTCCCTCA AGTGTCTGNG ACACATAATC ATTCCATCCA ATGATCGCT TGGCTTTACC
GGAACGTAA ACTAACCGTA TTAGTGAGGC CAACGHAAG ATCCAGGAGT TCAGGAGCAC TGTGTATTAG TAAGGTAGGT TACTAGCGGA AACGAATGG

tru9I
mseI        bsmAI
aseI/asnI/vspI bsaI      tspRI
2201 ACTCTTTCCT TTTATCTTAT TAATAAAAT GTTGTCTTCC ACCACTGNT CCCAAAAAA AAAAAAAA AAAAAAAA AAAAAAAA
TGAGRAAGGA AARTAGAATA ATTATTTTA CAACGAGG TGGTACNGA GGGTTTTTT TTTTTTTTT TTTTTTTTT TTTTTTTTT

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scrFI[M.hpaII-]
ncII
mspI
hpaII
dsav
bsKI      sau96I rsal
xmaI/pspAI  rsrII/cspI
smaI      mroI   nlaIV
          scrFI[M.hpaII-] cpoI kpnI hpyCH4V
          acII
          fnu4HI/bsoFI      taqI nciI      hpy188III csp6I
          haeIII/palI      sstI salI dsav      bspMI bani sfcI
          mcrI      sacI hincII/hindII[M.taql-] avall[M.hpaII-]
          eagI/xmaIII/ecI XI aluI accI[M.taql-] tru9I mspI asp718
          eaeI      hgiAI/aspHI[M.aluI-] mseI bspEI cfr10I/bsrFI
          cfrI      rmaI ecII36II      bssKI aseI/asnI/vspI acc65I cac8I
          bsiEI      maeI bsp1286[M.aluI-] xmiI tsp509I bsaWI pstI
          notI      bfaI bsiHKAI      bsaJI tsp509I bsaWI ageI sse8387I
          fnu4HI/bsoFI      bmyI hpy99I avai[M.hpaII-] hpaII mspI bspMI rsal
          acII      speI banII[M.aluI-] asp700 accIII hpaII sbfI csp6I aluI sf
2301 AAAAAAAAAA AAAGGGGGC CGCCGACTAG TGAGTCGTC GACCCGGGAA TTAATTCGG ACCGGTACCT GCAGCGGTAC CAGCTTTCCC
TTTTTTTTTT TTTTTTTTTT TTCCCGCG CGGGCTGATC ACTCGAGCAG CTGGCCCTT AATTAAGGCC TGGCCATGGA CGTCCCATG GTCGAAGGG

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pleI
mlyI
hinfi      aluI
2401 TATAGTAGT CGTATAGAG CTGG
      ATATCACTCA GCATATCTC GAAC

```

> length: 2425

aatII (GACGTC) :	25
acc65I (GGTACC) :	1295 2374
accI (GTMKAC) :	727 1117 2348
accIII (TCGGA) :	2366
acII (CCGC) :	86 332 355 511 1420 1672 2326 2330
acyI (GRCGYC) :	25
afIII (ACRYGT) :	37
ageI (ACCGGT) :	2371
ahaII (GRCGYC) :	25
ahaIII (TTTAAA) :	1914
aluI (AGCT) :	19 48 110 485 569 1006 1680 1781 2016 2343 2392 2419
alw26I (CAGNNCTG) :	418 523 565
alwI (GGATCNNNN) :	270 271 628 785 959 1319 1599 1609 1610 1817 1936
alwNI (CAGNNCTG) :	418 523 565
apaI (GGCCCC) :	533
apoI (RAATTY) :	54 409 841 1249 1381 1879
apyI (CCWGG) :	528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
aseI (ATTAAT) :	1787 2219 2360
asni (ATTAAT) :	1787 2219 2360
asp700 (GAANNNTTC) :	375 1159 1379 1469 2358
asp718 (GGTACC) :	1295 2374
asphi (GWCWC) :	484 2152 2342
aspi (GACNNNGTC) :	451
avaI (CYCGRG) :	62 280 995 2353
avaII (SGWCC) :	559 705 909 1140 1985 2143 2369
balI (TGGCCA) :	437
bamHI (GGATCC) :	270 1609
banI (GGYRCC) :	640 1295 2374

banII (GRGTC):	484 533 809 2342
bbsI (GAAGACNNNNNN):	130 379 587
bbvI (GCAGC):	292 312 315 318 321 508 519 522 567 570 672 1235 1552 1756 2017 2024
bceAI (ACGGCNNNNNNNNNN):	502 656
bfaI (CTAG):	243 1210 1216 1396 1504 1805 1849 1889 2140 2337
bglI (GCCNNNNNGGC):	535
bglII (AGATCT):	822
bmyI (GDGCHC):	159 484 533 809 2152 2342
bpmI (CTGGAG):	96 258 325 814 883 1290
bpuAI (GAAGACNNNNNNNN):	130 379 587
bsaAI (YACGTR):	42
bsaHI (GRGTC):	25
bsaI (GGTCTCNNNNNN):	1034 2234
bsaJI (CCNNGG):	139 359 503 528 545 684 812 881 995 996 1143 1516 2060 2353
bsaWI (WCCGGW):	1226 2127 2366 2371
bseRI (GAGGACNNNNNNNNNN):	342 749 1270
bsgI (GTGCAG):	415 670 1994
bsh1236I (CGCG):	38 331 1329
bsiEI (CGRYCG):	755 2327
bsiHKAI (GWGCWC):	484 2152 2342
bsiWI (CGTACG):	40
bslI (CCNNNNNNNGG):	135 184 274 275 354 396 614 631 771 1847 1848 2060
bsmAI (GTCTC):	1034 2235
bsmAI (GTCTC):	1034 2235
bsmFI (GGGACNNNNNNNNNNNN):	143 202 297 1141 1399 1986
bsoFI (GCNGC):	85 292 312 315 318 321 332 508 519 522 567 570 672 1235 1552 1756
	2017 2024 2326 2329
bsp120I (GGGCC):	533
bsp1286 (GDGCHC):	159 484 533 809 2152 2342
bspCNI (CTCAGNNNNNNNNNN):	563 1050

bspEI (TCGGGA) :	2366
bspHI (TCATGA) :	1074
bspMI (ACCTGC) :	2377
bspMII (TCCGGA) :	2366
bsrFI (ROCGGY) :	2371
bsrI (ACTGGN) :	384 618 1542
bsSKI (CCNGG) :	139 360 528 609 684 813 882 995 996 1038 1113 1137 1144 1239 1342
	1363 1602 1638 2061 2353 2354
bsSI (CTCGTG) :	2155
bst4CI (ACNGT) :	643 1354 1573
bstAPI (GCANNNNTG) :	641
bstDSI (CCRYGG) :	503 1516
bstF5I (GGATG) :	405 606 857 1068 1203 1605 1844 1857 2175
bstNI (CCWGG) :	528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
bstUI (CGCG) :	38 331 1329
bstXI (CCANNNNTGG) :	260 1478
bstYI (RGATCY) :	270 822 1609
btgI (CCRYGG) :	503 1516
btrI (CACGTC) :	667
btsI (GCAGTGNN) :	1992
cac8I (GCNNGC) :	31 35 303 675 868 975 2020 2381
cfoI (CGGC) :	330 364 525 809 1328
cfr10I (ROCGGY) :	2371
cfrI (YGGCCR) :	437 500 611 657 1365 2327
cpoI (CGWCCG) :	2368
csp6I (GTAC) :	41 387 1296 1897 2375 2387
cspI (CGWCCG) :	2368
ddeI (CTNAG) :	563 1050 1265 1767
dpuI (GATC) :	271 628 786 823 960 1030 1320 1566 1599 1610 1644 1812 1817 1937
	2183

dpnII (GATC) : 271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
 2183
 draI (TTTAA) : 1914
 draII (RGENCCY) : 532 558 768 1984 2142
 draIII (CACNNNGTG) : 642
 dsaI (CCRYGG) : 503 1516
 dsaV (CCNGG) : 139 360 528 609 684 813 882 995 996 1038 1113 1137 1144 1239 1342
 1363 1602 1638 2061 2353 2354
 437 500 611 657 1365 2327
 2327
 eaeI (YGGCCR) : 15 487 862 1100 1177
 eagI (CGGCG) : 484 2342
 earI (CTCTTCNNN) : 2327
 eclI36II (GAGCTC) : 250 424 474 489 804
 eclXI (CGGCG) : 396
 eco57I (CTGAAG) : 532 558 768 1984 2142
 ecoNI (CCTNNNNAGG) : 54
 ecoO109I (RGENCCY) : 528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
 1929
 ecoRI (GAATTC) : 85 292 312 315 318 321 332 508 519 522 567 570 672 1235 1552 1756
 2017 2024 2326 2329
 ecoRII (CCWGG) : 38 331 1329
 ecoRV (GATATC) : 405 606 857 1068 1203 1605 1844 1857 2175
 fna4HI (GCNGC) : 96 258 325 814 883 1290
 363 524 799
 fnuDII (CGCG) : 438 501 534 543 612 658 769 1366 1776 2328
 295 420
 foki (GGATG) : 484 2152 2342
 gauI (CTGGAG) : 330 364 525 800 1328
 haeII (RGGGCT) : 330 364 525 800 1328
 haeIII (GGCC) :
 hgaI (GACGC) :
 hgiAI (GNGCWC) :
 hhaI (GCGC) :
 hinPI (GCGC) :

hincII (GTYRAC) :	2348
hindII (GTYRAC) :	2348
hinfI (GANTC) :	204 451 585 914 1120 1148 1275 1500 1829 2070 2407
hinfI (GRCGYC) :	25
hpaII (CCGG) :	139 361 684 996 1227 1239 1602 2128 2354 2367 2372
hphI (GGTGA) :	3 181 346 1023 1434 1832
hpy188I (TCNGA) :	51 79 252 476 491 582 806 946 1568 1809 1814
hpy188III (TCNGA) :	97 281 402 443 1051 1074 1209 1289 1446 1873 1933 2156 2366
hpy99I (CGWCG) :	27 2347
hpyCH4III (ACNGT) :	643 1354 1573
hpyCH4IV (ACGT) :	26 43 149 668
hpyCH4V (TGCA) :	34 416 521 671 1030 1283 1524 1995 2023 2051 2104 2380
kpnI (GGTACC) :	1295 2374
ksp632I (CTCTTCNNNN) :	15 487 862 1100 1177
maeI (CTAG) :	243 1210 1216 1396 1504 1805 1849 1889 2140 2337
maeII (ACGT) :	26 43 149 668
maeIII (GTNAC) :	4 180 1435 2158
mboI (GATC) :	271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
	2183
mboII (GAAGA) :	15 131 380 488 588 825 862 917 1101 1177 1219 1450
merI (CGRYCG) :	755 2327
mfeI (CAATTG) :	1622
mluI (ACGGGT) :	37
mluI (GAGTCNNNNN) :	204 451 585 1120 1500 2407
mnII (CCTC) :	65 77 126 185 209 227 246 344 350 396 469 545 562 598 724 749 853
	865 886 1021 1168 1180 1270 1287 1293 1324 1402 1738 1835 2005 2146
mroI (TCCGGA) :	2366
msci (TGGCCA) :	437
mseI (TTAA) :	175 1788 1915 1981 2220 2361
msII (CAYNNNRGTG) :	400 1405 1407

mspAI (CMGCKG) :
nspI (CCGG) :
munI (CAATTG) :
mvaI (CCWGG) :
mvaI (CCGG) :
mvoI (GCNNNNNGGC) :
ncII (CCSGG) :
ndeII (GATC) :

nlaIII (CATG) :
nlaIV (GNNCC) :
notI (GCGGCCGC) :
nspBII (CMGCKG) :
nspHI (RCATGY) :
nspI (RCATGY) :
paerJI (CTCGAG) :
pali (GGCC) :
pflFI (GACNNNGTC) :
pleI (GAGTCNNNN) :
ppuMI (RGGWCCY) :
pshAI (GACNNNGTC) :
pspAI (CCCGGG) :
pspGI (CCWGG) :
pspOMI (GGGCC) :
petI (CTGCAG) :
pvuII (CAGCTG) :
zsaI (TCATGA) :
tmaI (CTAG) :
rsaI (GTAC) :
rarII (CGGWCCG) :

568 1672
139 361 684 996 1227 1239 1602 2128 2354 2367 2372
1622
528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
38 331 1329
303 312 315 321 357 502 535 641 650 793 802 1555 1665
139 360 684 995 996 1239 1602 2353 2354
271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
2183
32 199 336 555 1014 1075 1315 1407 1497
270 532 533 558 640 705 991 1054 1140 1164 1295 1609 1741 1985 2374
2326
568 1672
31 335
31 335
62
438 501 534 543 612 658 769 1366 1776 2328
451
204 451 585 1120 1500 2407
558 1984 2142
553
995 2353
528 609 813 882 1038 1113 1137 1144 1342 1363 1638 2061
533
520 2379
568
1074
243 1210 1216 1396 1504 1805 1849 1889 2140 2337
41 387 1296 1897 2375 2387
2368

sacI (GAGCTC) :	484 2342
sall (GTCGAC) :	2348
sapI (GCTCTTCNNNN) :	15 486 1099
sa3AI (GATC) :	271 628 786 823 960 1090 1320 1566 1599 1610 1644 1812 1817 1937
	2183
sa96I (GGNCC) :	533 534 559 705 769 909 1140 1776 1985 2143 2369
sbFI (CCTGCAGG) :	2378
scrFI (CCNGG) :	139 360 528 609 684 813 882 995 996 1038 1113 1137 1144 1239 1342
	1363 1602 1638 2061 2353 2354
	1067
sfanI (GCATC) :	10 520 2379 2400
sfcI (CTRYAG) :	534
sfii (GGCCNNNNGGCC) :	995 2353
smaI (CCCGGG) :	62 2006 2147
smLI (CTYRAG) :	42
snabI (TACGTA) :	2336
speI (ACTAGT) :	31
sphI (GCATGC) :	40
spLI (CGTACG) :	2378
sse8387I (CCTGCAGG) :	1528 1949
sspl (AATATT) :	484 2342
sstI (GAGCTC) :	26 43 149 668
taII (ACGT) :	63 443 1259 1322 2349
taqI (TCGA) :	914 1148 1275 1829 2070
tfII (GAWTC) :	38 331 1329
thai (CGCG) :	62
tliI (CTCGAG) :	175 1788 1915 1981 2220 2361
tru9I (TTAA) :	292 312 315 318 321 508 519 522 567 570 672 1235 1552 1756 2017 2024
tseI (GCWGC) :	4 180 1435 2158
tsp45I (GTSAC) :	55 410 842 942 1250 1382 1623 1668 1748 1880 2107 2359 2363
tsp509I (AATT) :	

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- AST4 Adipocyte Lipogenesis
- AST5 Hematopoietic stem cell proliferation
- AST6 Hematopoietic Neutrophil Survival
- AST7 Human Neutrophil Survival
- AST8 Human Neutrophil Survival
- AST9 Human Neutrophil Survival
- AST10 Human Neutrophil Survival
- AST11 Human Neutrophil Survival

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AST7 AST8
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AST11

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AST9 AST10
AST11

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AST3 AST4
AST5 AST6
AST7 AST8
AST9 AST10
AST11

Rows 1 - 2 of 2

AST1 AST2
AST3 AST4
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AST7 AST8
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AST11

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AST1 AST2
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AST9 AST10
AST11

Select Page Page No. 1

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AST11

Comment

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AST3 AST4
AST5 AST6
AST7 AST8
AST9 AST10
AST11

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